H0562-TMA/RECR

RECRA ENVIRONMENTAL INC.

Chemical and Environmental Measurement Information

0053273

APR 2000 RECEIVED Data Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-078
RFW# : 0004L859
SDG/SAF# : H0562/B99-078
Relog of RFW# : 9910L313

W.O.# : 10985-001-001-9999-00
Date Received: 04-03-00

RECEIVED JUN 26 2000 EDMC

METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 soil sample and 2 TCLP leachate samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. Sample B0WKV1 was reported with a ten fold dilution for Mercury due to the high concentration of this analyte.

3. The TCLP procedure for Mercury and the analysis of the soil sample for Mercury were performed out of hold. The analyses of all leachates were performed within the required holding times.

4. The cooler temperature has been recorded on the original Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. All laboratory control samples (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recovery for Mercury was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. When the Mercury matrix spike (MS) is out of control, a serial dilution is performed.

12. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. The TCLP extract from sample B0WKV1 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

14. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

04-17-00
Date

mld/m04-859

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0004L859

Leaching Procedure: __1310 ✓1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A ✓3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B	__200.7			__99
Antimony	__6010B __7041 [5]	__200.7 __204.2			__99
Arsenic	__6010B __7060A [5]	__200.7 __206.2	__3113B		__99
Barium	__6010B	__200.7			__99
Beryllium	__6010B	__200.7			__99
Bismuth	__6010B [1]	__200.7 [1]		__1620	__99
Boron	__6010B	__200.7			__99
Cadmium	__6010B __7131A [5]	__200.7 __213.2			__99
Calcium	__6010B	__200.7			__99
Chromium	__6010B __7191 [5]	__200.7 __218.2			__SS17
Cobalt	__6010B	__200.7			__99
Copper	__6010B __7211 [5]	__200.7 __220.2			__99
Iron	__6010B	__200.7			__99
Lead	✓6010B __7421 [5]	__200.7 __239.2	__3113B		__99
Lithium	__6010B __7430 [4]	__200.7		__1620	__99
Magnesium	__6010B	__200.7			__99
Manganese	__6010B	__200.7			__99
Mercury	✓7470A [3] ✓7471A [3]	__245.1 [2] __245.5 [2]			__99
Molybdenum	__6010B	__200.7			__99
Nickel	__6010B	__200.7			__99
Potassium	__6010B __7610 [4]	__200.7 __258.1 [4]			__99
Rare Earths	__6010B [1]	__200.7 [1]		__1620	__99
Selenium	__6010B __7740 [5]	__200.7 __270.2	__3113B		__99
Silicon	__6010B [1]	__200.7		__1620	__99
Silica	__6010B	__200.7		__1620	__99
Silver	__6010B __7761 [5]	__200.7 __272.2			__99
Sodium	__6010B __7770 [4]	__200.7 __273.1 [4]			__99
Strontium	__6010B	__200.7			__99
Thallium	__6010B __7841 [5]	__200.7 __279.2 __200.9			__99
Tin	__6010B	__200.7			__99
Titanium	__6010B	__200.7			__99
Uranium	__6010B [1]	__200.7 [1]		__1620	__99
Vanadium	__6010B	__200.7			__99
Zinc	__6010B	__200.7			__99
Zirconium	__6010B [1]	__200.7 [1]		__1620	__99

Other:_____ Method:_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 04/10/00

CLIENT: TMU-HANFORD B99-078 RECRA LOT #: 0004L859

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WKV1	Mercury, Total	14.2	MG/KG	0.24	10.0
-003	B0WKV1	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
		Lead, TCLP Leachate	308	UG/L	26.6	1.0
-004	B0WKV3	Lead, TCLP Leachate	251	UG/L	26.6	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/10/00

CLIENT: TNU-HANFORD B99-078 RECRA LOT #: 0004L859

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	00C0102-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	00C0100-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0
BLANK2	00C0100-MB2	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
BLANK3	00C0100-MB3	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0
BLANK1	99L1099-MB1	Lead, TCLP Leachate	26.6 u	UG/L	26.6	1.0
BLANK2	99L1099-MB2	Lead, TCLP Leachate	26.6 u	UG/L	26.6	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 04/10/00

CLIENT: TWU-HANFORD B99-078 RECRA LOT #: 0004L859

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0WKV1	Mercury, Total	9.8	14.2	0.24	-1900. *	10.0
-003	B0WKV1	Mercury, TCLP Leachate	203	0.10u	200	101.7	25.0
		Lead, TCLP Leachate	9260	308	10000	89.5	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 04/10/00

CLIENT: TWU-HANFORD B99-078 RECRA LOT #: 0004L859

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0WKV1	Mercury, Total	14.2	15.5	9.2	10.0
-003REP	B0WKV1	Mercury, TCLP Leachate	0.10u	0.10u	NC	1.0
		Lead, TCLP Leachate	308	356	14.4	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/10/00

CLIENT: TWU-HANFORD B99-078 RECRA LOT #: 0004L859

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	00C0102-LC1	Mercury, LCS	0.92	1.0	MG/KG	92.4
LCS1	00C0100-LC1	Mercury, LCS	5.2	5.0	UG/L	104.7
LCS1	99L1099-LC1	Lead, LCS	2490	2500	UG/L	99.5

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 04/03/00 RFW LOT # :0004L859

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	LEACH DATE	EXTR/PREP	ANALYSIS
B0WKV1						
TCLP	001	S	00LTO035	10/06/99	04/04/00	04/05/00
MERCURY, TOTAL	001	S	00C0102	10/06/99	04/06/00	04/07/00
MERCURY, TOTAL	001 REP	S	00C0102	10/06/99	04/06/00	04/07/00
MERCURY, TOTAL	001 MS	S	00C0102	10/06/99	04/06/00	04/07/00
B0WKV3						
TCLP	002	S	00LTO035	10/06/99	04/04/00	04/05/00
B0WKV1						
MERCURY, TCLP LEACHA	003	W	00C0100	04/05/00	04/05/00	04/06/00
MERCURY, TCLP LEACHA	003 REP	W	00C0100	04/05/00	04/05/00	04/06/00
MERCURY, TCLP LEACHA	003 MS	W	00C0100	04/05/00	04/05/00	04/06/00
LEAD, TCLP LEACHATE	003	W	99L1099	04/05/00	04/06/00	04/06/00
LEAD, TCLP LEACHATE	003 REP	W	99L1099	04/05/00	04/06/00	04/06/00
LEAD, TCLP LEACHATE	003 MS	W	99L1099	04/05/00	04/06/00	04/06/00
B0WKV3						
LEAD, TCLP LEACHATE	004	W	99L1099	04/05/00	04/06/00	04/06/00

LAB QC:

MERCURY LABORATORY	LC1 BS	S	00C0102	N/A	04/06/00	04/07/00
MERCURY, TOTAL	MB1	S	00C0102	N/A	04/06/00	04/07/00
MERCURY LABORATORY	LC1 BS	W	00C0100	N/A	04/05/00	04/06/00
MERCURY, TOTAL	MB1	W	00C0100	N/A	04/05/00	04/06/00
MERCURY, TCLP LEACHA	MB2	W	00C0100	N/A	04/05/00	04/06/00
MERCURY, TCLP LEACHA	MB3	W	00C0100	N/A	04/05/00	04/06/00
LEAD LABORATORY	LC1 BS	W	99L1099	N/A	04/06/00	04/06/00
LEAD, TCLP LEACHATE	MB1	W	99L1099	N/A	04/06/00	04/06/00
LEAD, TCLP LEACHATE	MB2	W	99L1099	N/A	04/06/00	04/06/00

RECRA LabNet Use Only

00041859

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TOU-Hanford B99-078

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC Spec Del Std TAT 3 day

Date Rec'd 4-3-00 Date Due 4-6-00

Account #

Refrigerator #																	
#/Type Container	Liquid								5-1								
	Solid								1AG-1								
Volume	Liquid																
	Solid								500-1								
Preservatives									--1								

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

RECRA LabNet Use Only

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	TCLP	MHGTO		mPBTC	MHGTC
S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish	001	BOUKVI			S	10/6/99	0840	✓	✓			
	002	1 3			1	1	0850	✓				
	003	BOUKVI trip of 001			L	**	-				✓	✓
	004	1 3 1 002			1	1					✓	

Special Instructions: SAF B99078

DATE/REVISIONS:

1. Run Matrix QC
2. Bridged from 9910J313-001+003
3. ** Sec Isochron
4.
5.
6.

Original recd date = 10/8/99

Relinquished by	Received by	Date	Time
N/A	TRapp	4/3/00	-

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

RECRA LabNet Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___

Airbill # ___

2) Ambient or Chilled

3) Received in Good Condition Y or N

4) Labels Indicate Properly Preserved Y or N

5) Received Within Holding Times Y or N

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

COC Tape was: 1) Present on Outer Package Y or N; 2) Unbroken on Outer Package Y or N; 3) Present on Sample Y or N; 4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

11